Rethinking How We Score Capital Gains Tax Reform

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*The views expressed here do not necessarily reflect those of the Treasury Department (and possibly some of the coauthors).

Motivation

- "We should pay for these historic investments" Secretary Yellen, May 2021
- How much revenue would a 43% capital gains tax raise?
- Capital gains viewed as quite elastic: $|\varepsilon_{\text{capital gains},\tau}| > |\varepsilon_{X,\tau}|$ (e.g., $X =$ labor)
  - Retiming a capital gain realization in an investor's stock portfolio is easier than changing investment strategy for executives seeking to avoid a corporate tax increase, or reducing labor supply for workers when income tax rates rise.
  - Some believe the revenue-maximizing capital gains rate is around 30 percent

Question: Are these behavioral responses overstated, resulting in a potentially large underestimate of the revenue at play from capital gains tax increases?

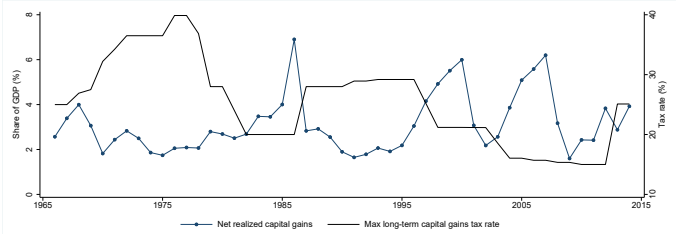
1. What do we know and how do we know it?

Examples of different types of approaches to investigate the effects of capital gains taxation

	Aggregate time series	**Individual-level**	**State-level**		**Calibrated models**
	Eichner, Sinai (2000)	*Dowd, McClelland, Muthitacharoen (2015)*	*Bakija, Gentry (2014)*	*Agersnap, Zidar (2021)*	*Jakobsen, Jakobsen, Kleven, Zucman (2020)*
Dynamics	✓	X	X	✓	✓
Aggregation	✓	X	✓	✓	X
Selection model	X	✓	X	X	X
Small changes	X	✓	✓	✓	X
Comparison group	X	✓	✓	✓	✓

#1a. What do we know and how do we know it? Aggregate time series

(a) Capital gains



(b) C-Corporation equity wealth

Source: Sarin, Summers, Zidar, and Zwick (2021).

▸ US vs. UK

#1b. Individual-level (e.g., Dowd, McClelland, Muthitacharoen, NTJ 15)

- Main estimating equation (DMM eq 3)

$$\ln g_{it} = \beta_1 \tau_{it-1} + \beta_2 \tau_{it} + \beta_3 \tau_{it+1} + X_{it}\beta_4 + \lambda_{it} + \epsilon_{it};\ \text{if Realization}_{it} > 0 \qquad (1)$$

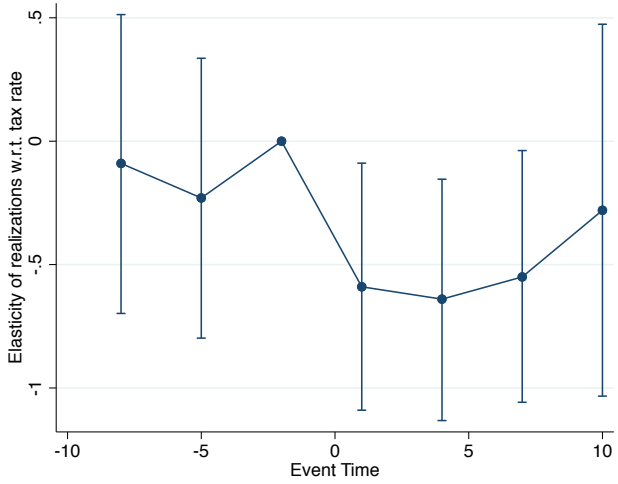
- Elasticity (DMM eq 4)

$$\begin{aligned} \varepsilon_{pit} &\approx \hat{\tau}_{it+1}(\beta_1 + \beta_2 + \beta_3) \\ &= 17.4\% \times \underbrace{(0.053 - 0.069 - 0.025)}_{=-0.041} = .71(\pm.22) \end{aligned}$$

Empirical challenges:

- Dynamics: misses effects outside narrow window of $t-1, t, t+1$
- Controls, e.g,. imputed unrealized gains, may influence implied impulse response
- Aggregation, heterogeneity, and weighting by dollars to map to 10 year score
- Selection model of positive realizations
- Small changes (paper uses state tax rates as IV)

#1c. State-level studies (e.g., Agersnap Zidar AER: Insights, 2021)



Source: Agersnap and Zidar (AER: Insights, Forthcoming).

#1d. Model parameters (e.g., Jakobsen, Jakobsen, Kleven, Zucman QJE 2020)

Use wealth elasticity estimates w.r.t. after-tax net return $\varepsilon_{w,R} = .4$ from JJKZ Table II

- Consider \$100K invested for 10 years at pre-tax return of 7%.
- After-tax net return $R = \underbrace{[(1.07)^{10} - 1]}_{=.97}\underbrace{(1 - \tau_{cg})}_{=.8} = .77$
- Increasing τ_{cg} from 20% to 40% $\Rightarrow \Delta \ln(R) = \ln(.58) - \ln(.77) = -.29$

$$\varepsilon_{w,R} = .4 \Rightarrow W' = (1 - .29 \times .4)100,000 = 88,492 \quad (2)$$

- Change in Capital Gains:
  $88,492 \times [(1.07)^{10} - 1] - 100,000 \times [(1.07)^{10} - 1] \approx 86K - 97K = -11K$
- Implied elasticity of realizations w.r.t τ_{cg} (under strong assumptions):
  $\varepsilon_{CG,\tau_{cg}} = \frac{-.11}{1} = -.11$

#1d. Model parameters (e.g., Jakobsen, Jakobsen, Kleven, Zucman QJE 2020)

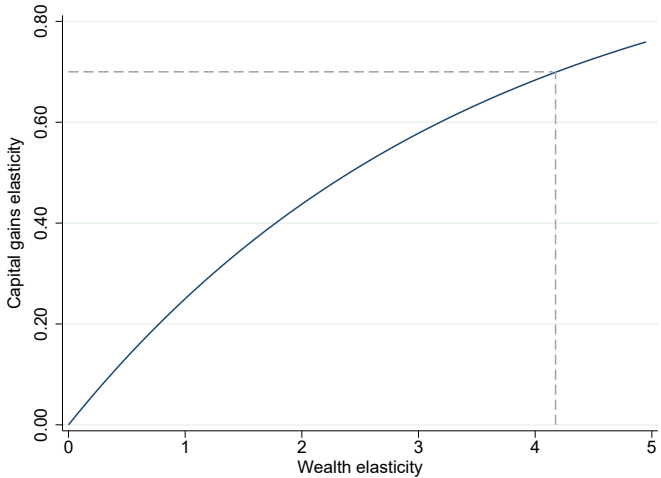
		τ_{CG} = 20%				τ_{CG} = 40%				
Source	ε_w	w_0	w_{10}	Gains	R	w_0'	w_{10}'	Gains	R	ε_{CG}
8-yr couples	0.20	100,000	196,715	96,715	0.77	94,409	185,716	91,308	0.58	0.06
8-yr wealthiest	0.40	100,000	196,715	96,715	0.77	89,130	175,332	86,202	0.58	0.11
30-yr couples	0.77	100,000	196,715	96,715	0.77	80,130	157,629	77,498	0.58	0.20
30-yr wealthiest	1.15	100,000	196,715	96,715	0.77	71,832	141,305	69,473	0.58	0.28
Implied	4.18	100,000	196,715	96,715	0.77	30,087	59,186	29,099	0.58	0.70

Under the $\tau_{CG} = 40\%$ regime, we calculate:

- $R = (1 - \tau_{CG}) * (1.07^{10} - 1) = 0.58$
- $w_0' = \exp\left(\varepsilon_w \left(\ln(0.58) - \ln(0.77)\right) + \ln(100,000)\right)$
- $w_{10}' = w_0' \cdot (1.07)^{10}$

We calculate $\varepsilon_{CG} = \left(1 - \frac{Gains_{\tau_{CG}=40\%}}{Gains_{\tau_{CG}=20\%}}\right) \cdot \frac{0.4-0.2}{0.2}$

#1d. Model parameters (e.g., Jakobsen, Jakobsen, Kleven, Zucman QJE 2020)



Revenue potential of capital gains taxes may be larger than many believe

1. **Many prior studies focus primarily on short-run taxpayer responses**, and so miss revenue from gains that are deferred when rates change
2. Rise of pass-throughs, index funds, has shifted **composition of capital gains**
   - If some parts are less elastic, then their elasticity should get more weight when scoring big changes (b/c will be more of remaining tax base)
3. Closer parity to income rates provides **backstop to rest of tax system**
   - Tax avoidance, evasion, and disguised wages (e.g., carried interest)
4. **Base-broadening reforms** will likely decrease the elasticity of tax base to τ_{cg}
   - Eliminating stepped-up basis
   - Making charitable giving a realization event
   - Reforming donor advised funds
   - Limiting opportunity zones to places with the highest poverty rates

Source: Sarin, Summers, Zidar, and Zwick (2021).

Revenue potential of top capital gains taxes may be larger than many believe

Unofficial estimates of revenue potential from taxing capital gains at ordinary income levels

Source	Revenue estimate ($B)	Elasticities	Notes
Penn Wharton Budget Model	382	With step-up in basis: -0.66 Eliminating step-up in basis: -0.53	Reported estimate includes $178B from taxing capital gains and dividends at ordinary rates, and $204B from repealing step-up in basis
Tax Foundation	469	Long-run: -0.79 Transitory: -1.2 (year 1) and -1.0 (year 2)	Tax capital gains and dividends at the same rate as ordinary income for those with income $1M+ and repeal step-up in basis
Tax Policy Center	373	With step-up in basis: -0.7 Eliminating step-up in basis: -0.4	Tax capital gains and dividends at the same rate as ordinary income for those with income $1M+ and tax unrealized gains at death

Notes: From Sarin, Summers, Zidar, and Zwick (2021). All rows present 10 year revenue estimates for raising the tax on capital gains and dividends to ordinary rates (39.6%) for income above $1 million and eliminating the step-up in basis at death.

Revenue potential of top capital gains taxes may be larger than many believe

Crude realization and revenue estimates [in progress]

Inputs:

- Elasticity of capital gain realizations w.r.t. net-of-tax rate ε_{NTR}
- Percent change in net-of-tax rate $\%\Delta NTR = (.6 - .8)/.8 = -.25$

Crude ten year estimates for rate increase to $\tau_{cg} = 40\%$:

$$Gains = \$10T \times \underbrace{(1 + \%\Delta NTR \times \varepsilon_{NTR})}_{=1-.25\times 1} \approx 7.5T \tag{3}$$

$$Revenue \approx 7.5T \times .4 = 3T \tag{4}$$

Notes:

- Revenue at $\tau_{cg} = 20\%$ is approx 2T over 10 years
- If $\varepsilon_{NTR} = 1$, then $\Delta Revenue \approx 1T$
- If $\varepsilon_{NTR} = 1.2$, then $\Delta Revenue \approx 800B$
- If $\varepsilon_{NTR} = 1.5$, then $\Delta Revenue \approx 500B$
- If $\varepsilon_{NTR} = 2$, then $\Delta Revenue \approx 0B$
- Use net-of-tax-rates at 22% rate (e.g., $e_\tau = -0.3 \Rightarrow e_{ntr} = \frac{-0.3}{.22/(1-.22)} = 1.06$)

Revenue potential of top capital gains taxes may be larger than many believe

Crude Realization and revenue estimates for 2 p.p. and 20 p.p. tax rate increases, by elasticity [in progress]

			Realizations when t=22%				Revenue when t=22%				Realizations when t=40%				Revenue when t=40%			
	CG base ($B)	Rev at t=20%	e=0	e=-0.3	e=-0.4	e=-0.7	e=0	e=-0.3	e=-0.4	e=-0.7	e=0	e=-0.3	e=-0.4	e=-0.7	e=0	e=-0.3	e=-0.4	e=-0.7
2021	1,192	238	1,192	1,160	1,149	1,118	262	255	253	246	1,192	875	769	452	477	350	308	181
2022	1,208	242	1,208	1,176	1,165	1,133	266	259	256	249	1,208	887	779	458	483	355	312	183
2023	1,116	223	1,116	1,087	1,077	1,047	246	239	237	230	1,116	819	720	424	446	328	288	169
2024	1,071	214	1,071	1,042	1,033	1,004	236	229	227	221	1,071	786	691	406	428	314	276	163
2025	1,055	211	1,055	1,027	1,018	990	232	226	224	218	1,055	775	681	401	422	310	272	160
2026	1,053	211	1,053	1,025	1,016	988	232	226	223	217	1,053	773	680	400	421	309	272	160
2027	1,063	213	1,063	1,035	1,025	997	234	228	226	219	1,063	780	686	403	425	312	274	161
2028	1,084	217	1,084	1,055	1,045	1,016	238	232	230	224	1,084	795	699	411	433	318	280	165
2029	1,111	222	1,111	1,081	1,072	1,042	244	238	236	229	1,111	816	717	422	444	326	287	169
2030	1,143	229	1,143	1,113	1,102	1,072	251	245	243	236	1,143	839	738	434	457	336	295	174
10-YR SUM		2219.09	11,095	10,800	10,702	10,407	2,441	2,376	2,354	2,290	11,095	8,145	7,162	4,211	4,438	3,258	2,865	1,684
						ΔRevenue	222	157	135	70				**ΔRevenue**	2,219	1,039	646	(535)

Notes:

- Use net-of-tax-rates at 22% rate (e.g., $e_\tau = -0.3 \Rightarrow e_{ntr} = \frac{-0.3}{.22/(1-.22)} = 1.06$)
- Calculate change relative to initial net-of-tax rate (e.g., $(.6 - .8)/.8 = -.25$)

▸ Initial Rate w.r.t. τ_{cg}

Concluding Discussion

What are revenue effects of $\tau_{cg} = .20, .28, .35,$ or $.43$?

- Large tax rate changes require extrapolation $\Rightarrow$ increased uncertainty
- Though investment and innovation are important considerations, surprisingly limited evidence on real effects of payout taxes (e.g., Yagan 2015 vs Moon 2021)
- Taxpayer perception about duration of tax changes is important
- Relabeling and timing considerations are important
- Incorporating asset-turnover models (like Auerbach 1989) and implied savings responses (e.g., JJKZ, 2020) might help provide additional moments

Takeaway: Helpful to know scoring model to guide research and quantify uncertainty

Appendix

Main table from Agersnap and Zidar

	Baseline					Big changes only					Control for other taxes				
Time Horizon	*0-10*	*0-2*	*3-5*	*6-8*	*6-10*	*0-10*	*0-2*	*3-5*	*6-8*	*6-10*	*0-10*	*0-2*	*3-5*	*6-8*	*6-10*
Total elasticity	3.39***	3.32***	4.78***	4.07***	3.66***	2.81***	3.54***	4.96***	3.77***	2.8**	2.28*	2.38**	3.58***	3.32**	2.98*
ε^{CG}	(1.01)	(.97)	(1.1)	(1.2)	(1.27)	(1.02)	(.97)	(1.1)	(1.19)	(1.3)	(1.32)	(1.19)	(1.24)	(1.43)	(1.54)
Policy elasticity	1.87**	2.09**	2.28***	1.94**	1.47	1.48*	2.5**	2.4***	1.65*	.99	1.01	1.25	1.64	1.4	1.18
$\varepsilon^{R} = \varepsilon^{CG} - \varepsilon^{N}$	(.91)	(.91)	(.88)	(.92)	(.97)	(.89)	(.98)	(.92)	(.91)	(1)	(1.18)	(1.16)	(1.01)	(1.14)	(1.19)
Laffer rate	.33***	.3***	.29***	.32***	.38**	.38***	.27***	.28***	.35***	.47*	.47*	.42**	.36**	.39**	.43*
$\tau^{*} = \frac{1-\tau_S}{1+\varepsilon^{R}}$	(.1)	(.09)	(.08)	(.1)	(.15)	(.14)	(.07)	(.07)	(.12)	(.24)	(.27)	(.21)	(.14)	(.19)	(.24)
Elast. w.r.t. tax	-.53**	-.59**	-.64***	-.55**	-.41	-.42*	-.71**	-.68***	-.46*	-.28	-.29	-.35	-.46	-.39	-.33
$\varepsilon^{tax} = \varepsilon^{R} \cdot \frac{-0.22}{1-0.22}$	(.26)	(.26)	(.25)	(.26)	(.27)	(.25)	(.28)	(.26)	(.26)	(.28)	(.33)	(.33)	(.29)	(.32)	(.34)
χ^2 test: $\varepsilon^{tax} = -1$	3.38	2.58	2.05	3.02	4.54	5.31	1.14	1.54	4.35	6.48	4.64	3.88	3.54	3.57	3.96
p-value	(.066)	(.108)	(.152)	(.082)	(.033)	(.021)	(.286)	(.214)	(.037)	(.011)	(.031)	(.049)	(.06)	(.059)	(.047)

Source: Agersnap and Zidar (AER: Insights, Forthcoming).

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Crude Realization and revenue estimates for 2 p.p. and 20 p.p. tax rate increases, by elasticity [In progress]

Uses initial rate $\%\Delta\tau_{cg} = \frac{\tau'_{cg} - .2}{.2}$, elasticities w.r.t. tax (not w.r.t. NTR)

			t = 22%						t = 40%					
	CBO Projections		Realizations			Revenue			Realizations			Revenue		
	Realizations	Revenue	e = 0	e = -0.3	e = -0.7	e = 0	e = -0.3	e = -0.7	e = 0	e = -0.3	e = -0.7	e = 0	e = -0.3	e = -0.7
2020	1,013	203	1,013	983	942	223	216	207	1,013	709	304	405	284	122
2021	1,009	202	1,009	979	938	222	215	206	1,009	706	303	404	283	121
2022	1,004	201	1,004	974	934	221	214	205	1,004	703	301	402	281	120
2023	987	197	987	957	918	217	211	202	987	691	296	395	276	118
2024	986	197	986	956	917	217	210	202	986	690	296	394	276	118
2025	996	199	996	966	926	219	213	204	996	697	299	398	279	120
2026	1,016	203	1,016	986	945	224	217	208	1,016	711	305	406	284	122
2027	1,043	209	1,043	1,012	970	229	223	213	1,043	730	313	417	292	125
2028	1,074	215	1,074	1,042	999	236	229	220	1,074	752	322	430	301	129
2029	1,110	222	1,110	1,077	1,032	244	237	227	1,110	777	333	444	311	133
SUM	10,238	2,048	10,238	9,931	9,521	2,252	2,185	2,095	10,238	7,167	3,071	4,095	2,867	1,229

▸ Net-of-tax-rate Approach